2: Caroe S-4 (no date) 1953 RL1 Soviet Central Asia RL1

is far from being a technical one to be applied successfully from a central draughtsman's office: it is a form of public works which to command success requires of its professor a sort of sixth sense, a feeling after the countryside, the climate, the lie of the land, the local native knowledge acquired by experience, the queer things water does both above and under the ground. The successful irrigator must be more than an expert scientist; his science has become an art. To see how and where he can give life to desert lands he needs some of those intuitive qualities of genius that distinguish the architect from the builder, the landscape-gardener from the tractor-driver. There have been men like this in the Panjab, Egypt, the Tennessee Valley; they have gained great experience which with wisdom could be turned to account by the Russians in Asia also. Such men treat water like a precious fluid that must be humoured. They know, for instance, that to preserve its power to grant fertility water must have its outlets as well as its infall.

The beginnings of Russian irrigation in Turkistan were not particularly auspicious. In all the piedmontane tracts there existed before the Russians came an indigenous system of irrigated channels, constructed with primitive tools and maintained by the joint labours of the village communities. The skill going to the construction and maintenance of such systems is well described in such books as Holdich's *Indian Borderland* and *Gates of India*; it was considerable. In all these countries water is more important than land, and whoever controls the water has power over the land. The method by which this power was acquired by the Russians has been described, and it constitutes one of the most definite steps taken to give effect to the new economic policy. In a land dependent on artificial watering the State thus secures a more absolute control over the peasant than can be the case where fertility depends on rainfall.

In such lands intensive cultivation of small-holdings is the rule. (Incidentally, intensive cultivation is akin to gardening, and of all types of agriculture the least suited to collective

2: Carroe S-4 (no date) 1953 RL1 Soviet Central Asia RL1

mechanization.) The Russians, coming fresh to the science of tropical agriculture, believed that the native use of wooden ploughs and shares instead of the iron plough implied a primitive condition. They could not estimate the value of the intensive cultivation that had gone on for thousands of years in the country. Togan tells us[1] how they tried to teach the unirrigated system of agriculture, as if the Turkistan people in their ignorance were incapable of understanding what it meant. They aimed not at getting a good crop out of a small-holding, but at cultivating large areas in order to get a large crop. Even Nalivkin, a former Governor of Farghana, had to admit that the Russian conquest had brought with it the cessation of intensive cultivation.

There was a time when even the Orsk and Emba areas north of the Caspian used to be cultivated by irrigation. There is evidence that in 1920 irrigation in that area was still being maintained to some extent, though the tradition was even then disappearing as the nomad Kazak inhabitants were driven south and agriculture in the Sir Darya basin decayed. Two Russians, Asmolovsky and Yusuf Karamshev, observed that, although the Sir Darya Kazaks used old primitive ploughs, it was for that reason that the land ploughed up with them retained its moisture and was more productive than that worked with the Russian plough. But there was one useful thing the people of Turkistan did learn from the Russians — how to mow with the scythe. Men like Barthold at that time issued warnings about the new methods and from the start were pessimistic about the attempt to cultivate the Mirza Chöl[2] (the desert near Jizak west of the point where the Sir Darya issues from the basin of Farghana). Never in history had these parts been farmed, although they were close to the river, and this was a case for learning from the experience of the native population, who must have had good reason for leaving these lands alone. Why not revive with the quickening

[1] *Op. cit.* pp. 291-3.

[2] The *Mirza Chöl* is a name also applied to the Betpak Dala, north of the Chu-Talash area.

2: Caroe S-4 (no date) 1953 RL1 Soviet Central Asia RL1

241 312 water the lands where there existed traces of former irrigation, as, for instance, the disused canal system of Gavkhore on the right bank of the Amu Darya opposite Khorezm? But no: Barthold was a mere professor, who had made for himself a picture of the country from 'Sart' sources. The Russian engineers were convinced of their wisdom, and money was devoted to schemes which, far from turning the land into a garden, in a few years led to water-logging, no measures having been taken to prevent the land turning into a morass, a home of reeds and waterfowl and a source of malaria.

> In September 1922 [says Togan], I passed by the lower side of the canals in Mirza Chöl, and a Kazak showed me how the poplars planted by the Russians were drying up, and the surface of the land, cultivated a few years before with care and trouble, was now covered with saltpetre.[1]

653 312 The Tsarist irrigation engineers seem to have had little conception of the dangers of water-logging and saltpetre which arise in a flat riverain country under a tropical sun, when water is brought to it and the fall is insufficient for natural drainage. The remedy lies in the provision of artificial drainage by digging channels to lower the watertable, but this is not always easy and it is very expensive. Even in their weirs and dams the Russian engineers set their bricks much too loosely, as compared with the old brick walls of indigenous canals, which had held for centuries. An effort by the Grand Duke Nicholas at the end of the XIXth century to construct a perennial irrigation system on the Amu Darya in Khorezm resulted only in cutting across and destroying the old indigenous inundation channels. The project was conceived as one in line with British irrigation works in the Panjab and in Egypt, but it is evident that the Russian engineers of that time had much to learn both as regards original canal construction and the remodelling of old works.

The Soviets have given great attention to irrigation works in Central Asia, and have certainly profited from the mistakes of their predecessors. Although in this case also it is hard to

[1] *Op. cit.* p. 295.

000 have for centuries been in close contact with Iranian tribes.

361 Between the customs and mode of life of these two peoples there are many interesting distinctions. To neither of them does the soil afford the conditions necessary for permanent settlement. Wherever there is a well or a water-hole which provides the moisture necessary to vegetation, they pitch their tents at will, and allow their herds to graze. When the pastures are exhausted, the camp is transferred to a favourable spot elsewhere, and the same process is repeated. Where the soil is suitable, the nomads of Turkestan grow grain and other food-plants, without, however, becoming permanently settled. Only in the oases have the Turkomans abandoned the nomad form of life, and have become domiciled.

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231 The two nomad peoples of Turkestan, the Turkomans and the Kirghiz, breed livestock — horses for riding, sheep for food and for their skins, and camels as beasts of burden. In addition to the horse the Turkomans also breed donkeys for riding. The different domestic animals kept by the two tribes explains another characteristic distinction between their otherwise very similar habits. Both are skilled in the preparation of a beverage of sour milk, which is particularly refreshing at the time of the burning summer heat. The Turkomans make yogurt of sheep's milk, whilst the Kirghiz ferment a similar drink known as kumyss from mare's milk. The reason for this is that the Turkomans, who

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7 [The Kara Kirghiz and the Turkomian --, Analyst]

361 surrounding almost every house. By the house
563 there are usually vegetable gardens as well, over which among other things bloom the inevitable sunflowers.

In general, the more well-to-do the peasants, the poorer the Cossacks. Peasants acclimatize relatively quickly and get accus-
[241] tomed to a new environment. The irrigation system of caring for the fields assures good harvests for them, which give them twelve-fold return of wheat. In addition to grain culti-
[691] vation the peasants work in orchards and do vegetable gardening. The only inconvenience suffered by the peasants is the eternal litigation with the nomads over water and land, and the local administration goes to great trouble to pacify the litigants. In general the problem of the limitations of the economy of the nomads and the settlers is the most serious and immediate problem in Semirechie. Nevertheless, in spite of the arguments, the opposing sides do not attempt major damage and it does not lead to serious clashes between them.

563 In recent times the attention of the local administration has been directed toward attracting peasants into the Cossack estate, in order to increase the body of the Semirechie Cossacks. They have been offered various privileges with this in view, but few have wished to join the Cossacks. The Siberian and Orenburg Cossacks may serve as contingents for the reinforcement of the Semirechie Cossack division, for they are already accustomed to the Cossack way of life, so to speak, and they will be given the possibility of moving into the new territory.

[Vernyy]

Concerning religious belief, the distribution is as follows:

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	Males	Females	Total
Roman Catholic	136	1	137
Protestant	22	2	24
Moslem	550	152	702
Buddhist	136	67	203
Jewish	14	-	14
Old Believers (raskol'niki)	15	13	28

All the rest of the population is of the Eastern Orthodox faith.

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The chief occupation of the inhabitants is agriculture. The types /425/ of grain grown here are spring and winter rye, wheat, oats, barley, millet and buckwheat. In addition potatoes are grown in considerable quantity.

In 1871 there was:	chetverts sown	chetverts reaped
Rye spring	249	2,922
Rye winter	498	1,754
Spring wheat	1,937	19,022
Oats	3,079	33,831
Barley	420	1,881
Buckwheat	23	191
Potatoes	223	1,239

The grain is used for domestic consumption and is not exported abroad. A part of it is disposed of to the Kazakhs, however, and a part goes to the distilleries and breweries.

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The residents of Vernyy are very active in kitchen gardening. Among their products there is a special kind of sweet melon planted with seeds from Kuldja, which is particularly worthy of note.

8:Kostenko 159-G-4,5 (1868-80)1880 RL1 Turkestan
[Kuldja] RL1

361 Few of the population worked in agricul-
241 ture in the past because many hands were taken away for the forces of the Sultan's armies. Since 1872 the population has entered actively into the cultivation of the land, being free of recruitment and having no obligations to the soil.

The wheat harvest here has only a 30-fold yield. (1)

361 1. In 1872 prices in the Kuldja market
435 were as follows:

Wheat in ordinary times costs 7 to 8 kopecks for 36 lb., but in 1872, because of military activities, disturbance, and the large number of military personnel supported in 1871, the price went up to 1 ruble, 80 kopecks. After that ordinary prices were 15 kopecks for rice, 15 kopecks for millet, 15 kopecks for barley, 4 kopecks for clover for 36 lb.

One hundred eggs cost 30 kopecks. 36 lb. of beef and mutton varies from 70 kopecks to 2 rubles, 40 kopecks. Before Kuldja was taken a hen cost 30 kopecks, afterwards the price rose to 8 kopecks. A pound of butter costs 30 kopecks. 36 lb. of tallow candles cost 5 rubles, the average cost of sugar is 30 rubles for 36 lb. Ordinary tea is sold for 1 ruble, 50 kopecks a pound.

A piece of matting 42 ft. (18 arshins) long costs from 60 to 70 kopecks. Russian cotton print material is sold at 22 kopecks for 2 ft. (one arshin).

3: Czaplicka E-4 (no date) 1918 RL4 Turkic Peoples
Turkestan RL1

districts: 1, Tomsk; 2, Krasnoyarsk-Achinsk; 3, Southern Steppes; 4, Yenisei; 5, Altai; 6, Minusinsk; 7, Northern Steppes. Probably some gold deposits could be found in Bokhara and Turkestan. 135

The silver deposits are found in great number in the Altai and north of Semipalatinsk. The richest deposits of coal, iron, and copper are found in the district between Novo-Nikolaevsk, Tomsk, Barnaul, and Kuznietsk; also in the region of Semipalatinsk. The Kuznietsk basin alone occupies some 15,000 sq. klm.

The best-known oilfields are situated on the western coast of the Caspian. But it is possible that the Transcaspian oilfields, now almost entirely limited to Chikishliar and some other points along the railway, may prove to be no less abundant. In Ferghana the oilfields are being exploited in four regions: 1, Shar-Su; 2, Maili-Su; 3, Chimionand; 4, Sel-Kokko, but so far the export is fairly limited; in 1914 it amounted to some 2,000,000 puds.

But it is cereals that form the most important product of export from Western Siberia, and 90 per cent. of the population is devoted to agriculture. Agriculture is found chiefly between 60° of N. lat. and 50° of S. lat. Beyond these limits the country is only half agricultural; while fishing, shooting, and cattle-breeding is carried on alongside. Out of some 12 million dess. occupied by cornfields in Asiatic Russia in 1911, some 4½ millions were situated in Western Siberia, 2½ millions in the Steppe country, and 3½ millions in Turkestan. The chief centres of the corn export are Novo-Nikolaevsk, Omsk, Kurgan, Pyetukhovo, Barnaul, and Semipalatinsk. In 1906–10 average early export = 93,014·4 thousand puds. 241 [62] [439]

Closely connected with agriculture is sheep-breeding, which is especially carried on in the Kirghis Steppes. While in European Russia at the outbreak of war for a hundred inhabitants there were only 32 sheep, in Russian Central Asia it amounted to some 200. The area of pasture land in Western Siberia amounted to some six million dess.; in the Steppe country some three million, and in Turkestan half 233

23: Shabad N-4 (no date) 1951 Rl Soviet Union Rl
Soviet Central Asia RL1

from the Caspian Sea (at Nebit-Dag), to the Fergana Valley and the lower Surkhan Darya, an affluent of the Amu Darya. Much importance is attached to the salt deposits in the Caspian gulf of Kara-Bogaz-Gol. This inlet, acting as a natural evaporating basin for the water of the Caspian Sea, has large deposits of Glauber salt (mirabilite). Sulphur deposits are found here to a greater extent than in any other part of the USSR, mainly in the center of the desert Kara-Kum, at Gaurdak, near the Amu Darya, and in the Fergana Valley. The ranges which surround this valley abound in nonferrous and rare metals: copper, lead, zinc, gold, silver, tungsten, mercury, and antimony. In the highlands of the Pamir, Iceland spar (a variety of calcite), precious stones, and gold are being mined at the present time. The combination of coal and iron deposits in and near the Fergana Valley have permitted the development of heavy industry.

The population of Soviet Central Asia amounts to 10.4 million people, with an average density of 22 per square mile. While in the desert area the average density falls as low as a few people per 100 square miles, the fertile and well-irrigated oases have a population density of about 1,000–1,500 per square mile, the highest rural population concentration in the USSR. The basic elements of the population belong to the Turkic and Iranian groups. The former, by far the more numerous, includes Uzbeks, Turkmen, Kirghiz, and Kara-Kalpaks, while the latter takes in the Tadzhiks, the remaining members of an ancient nationality of Central Asia, who speak a language akin to Iranian. The Uzbeks number more than one half the total population, besides Tadzhiks, Kirghiz, and Turkmen. Russians (above 6 percent), Bukhara Jews, Chinese Dungans, and others make up the remainder of this colorful ethnic mélange.

Until 1924 Soviet Central Asia was divided politically into the Turkestan Autonomous SSR (formed in 1922) and the Bukhara and the Khorezm Soviet People's republics (formed in 1920). Late in 1924 a reorganization of these territories and a redemarcation of boundaries along essentially ethnic lines led to the establishment of the Turkmen SSR, the Uzbek SSR (including the Tadzhik Autonomous SSR), and the Kara-Kirghiz (later Kirghiz) Autonomous SSR, which became part of the Russian SFSR. In 1929 and 1936, respectively, the Tadzhik and Kirghiz Autonomous SSR became full union republics.

Agricultural activities play the leading role in the economy of Central Asia. Depending upon the land form and the development of irrigation, the following branches of agriculture can be distinguished: (1) ir-

23· Shabad N-4 (no date) 1951 Rl Soviet Union Rl
Soviet Central Asia RL2

rigated farming, with intensive crops adapted to land irrigation (mainly cotton); (2) dry farming, including chiefly grain crops on mountain slopes having sufficient rainfall; (3) lowland livestock raising, including sheep and camels, adapted to the dry steppe and the desert; (4) highland livestock raising of cattle, goats, and sheep, adapted to valley pastures. Of all these activities, irrigated farming is by far the most important; it employs the greater portion of the population and covers more than two thirds of the sown area. The main crop in the irrigated area is cotton, remarkably well suited to the fertile loess soil of the lower valleys and the warm, sunny climate of Central Asia. The chief cotton areas are the Fergana Valley, the oases of Tashkent, Samarkand, and Bukhara, and the Vakhsh valley. The cotton is processed in local ginning plants, the seeds are sent to oil-extracting presses, and the husks are used for fodder. Other irrigated crops are rice, alfalfa, wheat, corn, sesame, and melons. The irrigated fields are generally bordered by mulberry trees, on which the silkworm is cultivated. One of the most common fruit-trees is the apricot; widespread orchards also produce peaches, apples, pears, pomegranates, grapes. Dried fruits (apricots, peaches, and raisins) form important articles of export. Grain crops occupy a very small portion of the irrigated area and are grown mainly on the non-irrigated mountain slopes.

Livestock is raised all year round, generally in the high mountain valleys in the summer and the lowland steppe and desert in the winter. The most important herds are sheep (including the karakul sheep), camels, cattle, horses, and mountain goats and yak.

Beside the mining industry developed at the deposits of petroleum, coal, salt, sulphur, and nonferrous metals, the industry is concentrated in the region of Tashkent, where it is supplied with power by the two large hydroelectric installations, the Chirchik and the Farkhad power plants. Tashkent is the center of the heavy metallurgy, textile, machine-construction, and food industries. Plants which process agricultural products are located in many other parts of Central Asia; they include ginning plants, oil presses, tanneries, fruit canneries, sugar refineries, and cotton and silk mills.

The basic transportation route is the Trans-Caspian Railroad, which sends many branches into the chief economic regions of Central Asia: the spur from Mary to Kushka, on the Afghan border, and the branches from Chardzhou to Kungrad (now under construction), from Kagan to Termez and Stalinabad, and from Ursat'yevskaya to Andizhan–Ko-
Kand-Namangan